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Ride The Rockies! 2006 Geology Highlights

Cortez to Cañon City June 18–23, 2006 419 Miles

Ride The Rockies Route
419 Miles

Start

Day 1 Sunday, June 18
Cortez to Durango
48 miles

Day 2 Monday, June 19
Durango to Pagosa Springs
87 miles

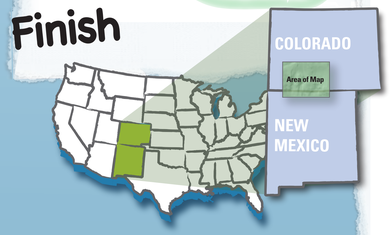
Day 3 Tuesday, June 20
Pagosa Springs to Chama, N.M.
50 miles

Day 4 Wednesday, June 21
Chama, N.M., to Alamosa
83 miles

Day 5 Thursday, June 22
Alamosa to Salida
84 miles

Day 6 Friday, June 23
Salida to Cañon City
67 miles

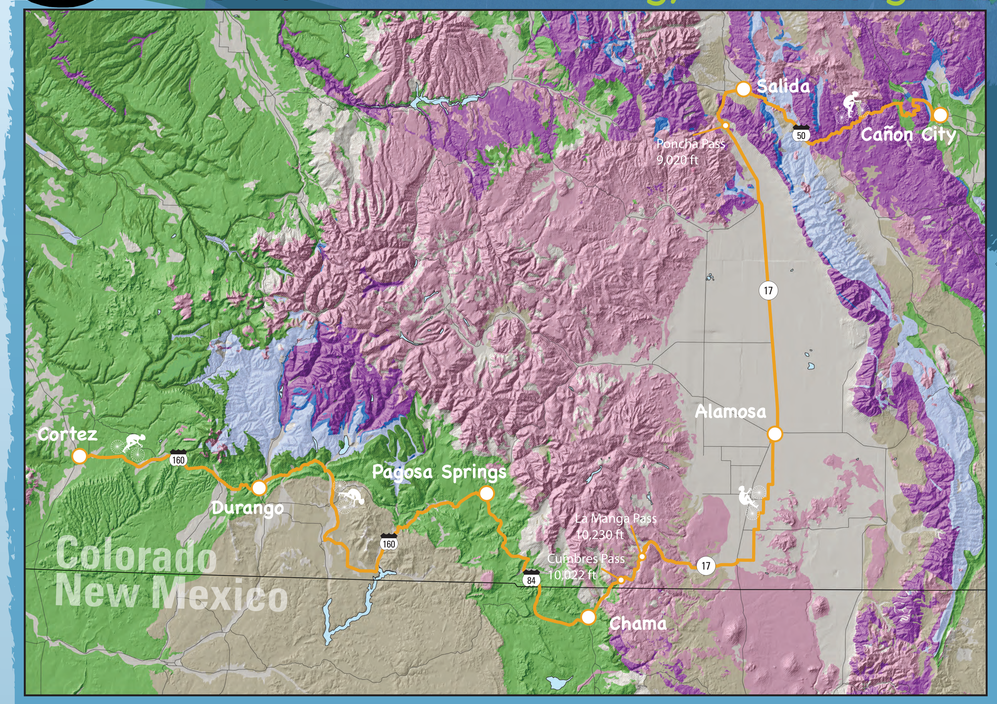
Finish



General Information Product 38

U.S. Department of the Interior
U.S. Geological Survey

Geology of the Region



Geology adapted by Janet L. Slate from two U.S. Geological Survey maps: *Geologic Map of Colorado*, compiled by Ogden Tweto (published in 1979), and *The Digital Geologic Map of Colorado in ARC/INFO Format*, by Gregory N. Green (published in 1992); and from New Mexico Bureau of Geology and Mineral Resources, 2003, *Geologic Map of New Mexico*, scale 1:500,000

Landsat Image of the Region

Geology

Quaternary—0 to 1.8 million years ago

This is the geologic time period during which the present landscape formed. Glaciation peaked and waned several times, sculpting cirques (semicircular-shaped bowls at the heads of mountain valleys) and U-shaped valleys. Last major glaciers retreated about 12,000 years ago.

Includes alluvium (sand, gravel, and silt deposited by rivers and streams), eolian (windblown) deposits, glacial deposits, landslide deposits, and young volcanic rocks (basalt flows).

Tertiary—1.8 to 66 million years ago

A major mountain-building episode, the Laramide orogeny, occurred during this period—70 to 45 million years ago. Erosion then exposed basement rocks and created a flat surface. Erosion of this surface during regional uplift—beginning 10 to 5 million years ago—shaped the present mountain landscape. Rifting (faulting) began about 30 million years ago, creating the Arkansas and San Luis Valleys.

Sedimentary rocks of Tertiary age
Includes sandstone, siltstone, shale, claystone, and conglomerate (rounded rock fragments in a fine-grained matrix).

Igneous rocks of Tertiary age
Includes volcanic rocks, such as basalt, rhyolite, and ash-flow tuffs (especially in the San Juan Mountains), and intrusive rocks with compositions similar to granite.

Cretaceous—66 to 144 million years ago

A seaway flooded Colorado, depositing shallow-marine, shoreline, and swamp sediments. Dinosaurs became extinct by the end of this period.

Includes primarily shale, sandstone, and coal, and minor limestone and conglomerate (rounded rock fragments in a fine-grained matrix).

Jurassic and Triassic—144 to 245 million years ago (includes some rocks as old as 320 million years)

The Ancestral Rockies were eroded during this time of deserts, intermittent streams, salt flats, coastal plains, dunes, and deltas. Dinosaur fossils and footprints are found in deposits of ancient river channels.

Includes sandstone, siltstone, and claystone, and minor limestone, gypsum, and conglomerate (rounded rock fragments in a fine-grained matrix).

Permian and Pennsylvanian—245 to 320 million years ago

During this time, rocks were uplifted to form the Ancestral Rocky Mountains, which were just as high and rugged as our present mountains. Erosion of older sediments resulted in deposition along mountain flanks and in basins.

Includes sandstone, siltstone, shale, conglomerate (rounded rock fragments in a fine-grained matrix), gypsum, and limestone.

Mississippian to Cambrian—320 to 540 million years ago

This was a time of widespread marine deposition when Colorado was intermittently below sea level.

Represented mostly by limestone, but also includes quartzite, sandstone, shale, and dolomite.

Precambrian—older than 540 million years ago (includes rocks as old as about 1.8 billion years in Colorado)

The Precambrian accounts for more than 85 percent of geologic time. These rocks are referred to as the basement rocks; they are exposed in the cores of major mountain ranges and in some of the deeper canyons. They are the products of metamorphism (changes in the chemistry and fabric resulting from heat and/or pressure) and igneous intrusion (emplacement of molten rock).

Includes intrusive rocks, chiefly granite, and metamorphic rocks such as gneiss, schist, and quartzite.

Lakes

About This Image

This satellite image is a mosaic of ten Landsat 7 scenes that cover parts of the States of Colorado and New Mexico. The scenes were acquired between October 1999 and August 2002.

Landsat 7 is a medium-resolution, polar-orbiting satellite managed by the U.S. Geological Survey (USGS). The instrument is an eight-band spectrometer. This image is a false-color composite, which combines bands 5 (SWIR), 4 (near-IR), and 3 (Red) and displays them as red, green, and blue, respectively.

The appearance of shaded relief was created using the National Elevation Dataset, which is based on digital elevation models that have a resolution of 30 meters. The 2006 Ride The Rockies route was superimposed using the ESRI and Maps roads database in ArcInfo.

Landsat 7 data are received, processed, and distributed by the USGS EROS Data Center in Sioux Falls, South Dakota. The EROS Data Center is the national archive for land remote sensing data, which includes aerial photography of the U.S., elevation data, declassified satellite photography, and nearly 30 years of Landsat images. Information on the archive holdings may be obtained by contacting the EROS Data Center, Customer Services Department at 1-800-252-4547, email custserv@usgs.gov or browse http://earthexplorer.usgs.gov

The image on this poster may be downloaded for free from the USGS. Go to http://www.cr.usgs.gov/rtr.htm to link to the download page.

I will ride it in the hills.
I will ride it for the thrills.

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